

Iron and Steel Industry Adjustment and Revitalization Plan

Guo Fa [2009] No. 6

As a pillar industry for national economy, the steel industry covers a large scope of fields, connects with many industries and substantially drives the consumption, and plays a positive role in the economic construction, social development, fiscal levy, national defense and employment.

In order to answer the international financial crisis and meet the requirements from the CPC Central Committee and State Council for keeping the economic growth, enlarging the domestic demands and adjusting the economic structure, to guarantee the smooth running of steel industry and accelerate the structural readjustment as well as boosting the industrial upgrading, this *Plan* is hereby drawn up as the action project for the comprehensive measures taken for the steel industry. The planning period is from 2009 to 2011.

I. Status quo of steel industry and situations to be faced

As both the large steel-maker and consumer, China ranks the first in the world for 13 consecutive years in terms of the raw steel output. Since entering the 21st century, China's steel industry has been growing quickly. The raw steel output boasts the annual average growth of 21.1%. In 2008, the raw steel output reached 500 million tons, accounting for 38% of the global output. The consumption quantity of raw steel inside China accounted for 453 million tons and the raw steel of 60 million tons were directly exported, accounting for 15 % of the global steel trade volume. The steel producers accomplished the added value of RMB 993.6 billion, accounting for 4% of China's GDP, so as to achieve the profits of RMB 243.6 billion, accounting for 9% of the industrial enterprises' total profits. Also, the quantity of employment for steel production accounted for 3.58 million. The steel products have basically satisfied domestic demands and some key varieties have reached the advanced stage in the world. The steel industry has powerfully supported and driven the development of related industries as well as promote social employment. In this case, it makes great contributions to the healthy and fast growth of national economy.

However, the contradiction from long-term extensive development is increasingly emerging in the steel industry. First, blind investment is serious, to cause the surplus of productive capacity. As of the end of 2008, China's raw steel output has reached 660 million tons, which is more than around 100 million tons than the quantity demanded. Second, the innovation ability is weak, so that the advanced production technology and R&D and application of high end products mainly depend on introduction and imitation. Some high-end steel products are still imported from abroad. The consumption structure is at the medium and low level. Third, industry distribution is unreasonable; most steel enterprises are in the inland large- and medium-sized cities, so that the production is seriously restricted by such factors as environment capacity, water resources, transport speed and energy supply. Fourth, the level of industrial concentration is low; the average size for the raw steel producers is less than 1 million tons. The top 5 steel-makers' steel output only accounts for 28.5 % of the total output nationwide. Fifth, the resource control ability is not enough; the quality of iron mines in China is low. So, the domestic content ratio thereof is less than 50%. Sixth, circulation is disordered. The steel product distributors are over 150,000. Thus, the adventure is serious.

Since the second half-year of 2008, China's steel industry has been seriously impacted due to the spread of the international financial crisis, to cause the sharp fall of both output and price. Business operation is difficult and the whole industry makes a loss. Thus, the stable development of steel industry is faced with

the unprecedented challenge. After long-term extensive development, the steel industry shall be under substantial adjustment. Currently, China still urgently demands urbanization and industrialization. The potential for domestic demand is tremendous. In this case, the overall situation for the development of steel industry has not changed. We shall take the favorable circumstances to work out a plan for structural adjustment and revitalization of the steel industry, to boost the smooth and healthy development of steel industry.

II. Guiding ideology, basic principles, and objectives

(I) Guiding ideology

Comprehensively follow the essence of 17th National Congress of CPC, Deng Xiaoping Theory and “Three Represents” and deepen and implement the scientific view of development, per the overall requirements for keeping the growth and adjusting the structure, two markets from both home and abroad shall be planned as a whole. Focusing on controlling the total quantity, phasing out the backward production capacity, reorganizing the enterprises, renovating the technique and optimizing the distribution, the structural readjustment and optimization of steel industry could be boosted. In addition, the quality of enterprise and international competitiveness are to be substantially enhanced, to accelerate the growth of steel industry.

(II) Basic principles

1. Pay attention to both the crisis and industrial revitalization. Based on the current conditions, we shall not only solve the present difficulties in the steel industry, but boost advanced productivity to keep the growth of the backbone enterprises, key varieties, and market stability to realize the stable development of industry. Utilize the bankruptcy mechanism and various favorable factors to accelerate the structural optimization of steel industry to continuously enhance the development potential of the steel industry.
2. The quantity control to be combined with optimized distribution. According to proper redistribution along the river, coastal area and inland, as well as the requirements for the resources environment, phase out the backward production capacity, reorganize the enterprises, and relocate the steel plants. Under the premise of controlling the total output, optimize industrial distribution.
3. Indigenous innovation to be combined with technical renovation. The enterprises shall be cultivated to make original innovation, integrated innovation and introduction of innovation, so as to obtain the key technologies for transformation and upgrade of the industry as well as enhance the technical reconstruction, technological equipment, and level and quality of the product.
4. Enterprise reorganization combined with system innovation. The system innovation to be adopted to remove the barriers for distribution of finance and taxation, asset transfer, and liability disposal due to the enterprise's reorganization, and favorable conditions could be available for boosting the development of steel enterprises into the enterprise groups and the merger and reorganization which covers the regions, ownerships and industries.
5. Domestic demand combined with global distribution. Two markets and two resources fully used to mainly satisfy the domestic market demands as well as optimize direct export and enlarge the indirect export. When strengthening the geologic examination and appropriately developing the domestic iron mines, grasp the opportunities to implement the strategy of "Go Global."

(III) Program objectives

Keep the growth of steel industry from decline in 2009 and ensure the overall stability thereof. By 2011, the extensive development mode of steel industry is to be obviously changed and both the technical level

and innovation ability shall be further developed, to substantially improve the comprehensive competitiveness and consolidate the steel industry as the mainstay industry, which grows healthily.

1. The total output to revert back to the proper level. In 2009, China's raw steel output is to reach 460 million tons, declining by 8%; the apparent consumption is kept around 430 million tons, drop by 5%. By 2011, the raw steel output is to reach around 500 million tons and the apparent consumption will be around 450 million tons. The added value of this industry will account for 4% of GDP.

2. New progress is made in the elimination of backward productive capacity. Eliminate the blast furnaces which are no more than 300 cubic meters as well as the converters and electric furnaces which are no more than 20 tons as scheduled. The standard for elimination of backward productive capacity to be improved, so that the backward smelt iron of 72 million tons and backward steel production of 25 million tons is to be phased out within three years.

3. Major progress achieved for jointly reorganization. Form several hyper-enterprises with rather strong indigenous innovation ability and international competitiveness, and top 5 steel makers in China to have over 45% of total productive capacity nationwide and the steel makers along the coastal areas account for over 40% of the productive capacity nationwide, so that the industrial distribution is obviously optimized and the steel enterprises' pollution in the major cities is significantly reduced.

4. Technological progress is substantially made. Technical reconstruction to be further strengthened to reduce the production costs, improve the quality of products and optimize the structure. Over 60% of the large and medium-sized steel enterprises' products reached the advanced level in the world. Also, the indigenous development is available for the steel plates with extra thickness for 1000 MW thermal power and nuclear power as well as the high magnetic induction grain-oriented silicon steel used for high-pressure boiler tube and 250,000 KVA transformers. The domestic content ratio of key rolling shapes reached over 90% and utilization ratio of the hot-rolled rib steel with more than 400 MPa reached over 60%.

5. Indigenous innovation ability is further enhanced. Introduction and innovation are made to improve the level of installations and technical equipment. Ordinary equipment basically realizes the localization. Localization rate of large-sized equipment to reach over 92%. Aim to make new progress in such aspects as key engineering, energy-saving as well as the R&D, production and applied technology of high end products.

6. Energy-saving and pollution control obviously improved. For the large- and medium-sized enterprises, comprehensive energy consumption for per ton of steel is no more than 620kg standard coal equivalent; water consumption for per ton of steel is lower than 5 tons; the dust emission for per ton of steel is less than 1.0kg; CO₂ emission for per ton of steel is less than 1.8kg. Recovering for reuse of the secondary energy basically achieves 100%; integrated utilization of metallurgy wastes nearly achieves 100%; also, both the concentration and total quantity of pollutant emission have reached the standards as required.

III. Major tasks for adjustment and revitalization of the steel industry

Per the above guiding ideology, basic principles and program objectives, eight tasks shall be well carried out in the current and future period.

(I) Maintain stability of the domestic market, improve export conditions.

The state's measures for increasing the domestic demands to be positively implemented to stabilize the constructional steel market to guarantee steel used for the major projects. The related industries adjusted and revitalized to stabilize and increase the demands from such industries as automobile, shipbuilding and

equipment manufacturing as well as the demands from real estate construction, new countryside construction, reconstruction after the earthquake and major infrastructure development such as roads, railroads and airports. The steel used for construction accounts for around 50% of the steel used inside China.

Improve import and export of steel products, implement flexible export tax policy, stabilize shares in the international market, and encourage indirect export of steel products. Related associations and enterprises to be organized to positively answer the trade frictions such as anti-dumping and anti-allowance, so as to endeavor for the favorable foreign trade environment.

(II) Strictly control total steel output, accelerate the elimination of backward productive capacity.

Strictly control newly increased productive capacity, not approve and support the blindly construction and expansion of the steel projects. All the projects to be based on the elimination of backward productive capacity. By the end of 2010, the blast furnace (no more than 300 cubic meters) with the productive capacity of 53.4 million tons as well as the converters and electric furnaces (no more than 20 tons) with the productive capacity of 3.2 million tons to be eliminated; by the end of 2011, the blast furnace (no more than 400 cubic meters) and converters & electric furnaces (no more than 30 tons) shall be further eliminated. Backward iron smelting capability of 72 million tons and steel production capability of 25 million tons to be respectively eliminated. For the regions and other related areas where the elimination of backward productive capacity and construction of large steel plants are carried out, the standards for eliminating the backward productive capacity shall cover the blast furnaces under 1000 cubic meters and relevant productive capacity for the steel production.

(III) Promote reorganization of enterprises, enhance industrial concentration.

Further bring into play the driving effect of large enterprise groups such as Bao Steel, Anben Iron and Steel Group and Wuhan Steel, and carry out substantial reorganization in Anben Iron and Steel Group, Guangdong Steel Group, Guangxi Steel Group, Hebei Steel Group and Shandong Steel Group, to achieve the unified management in terms of supply, sales and finance; Carry out trans-regional reorganization among the Anben, Banzhuhua iron & Steel and special Northeast Special Steel Group; Bao Steel, Baotou Steel and Ningbo steel. Boost regional reorganization for Tianjin Steel Tube, Tianjin Iron, Tianjin Steel, Tianjin Metallurgy Company, Taiyuan Steel and other steel enterprises in Tianjin. By 2011, the hyper-steel enterprises with the productive capacity of over 50 million tons and strong international competitiveness such as Bao Steel, Anben Steel and Wuhan Steel to be available and several large-sized enterprises with the productive capacity of 10-30 million tons to be established.

(IV) Enhance technical reconstruction, boost technological progress.

Carry out technological progress and technical reconstruction for the steel industry, major support given to large-sized backbone enterprises following the state's industrial policies; the leading enterprises which implement the reorganization of trans-regions, ownerships and industries, as well as the producers for critical materials used in national defense and outer-space flight and aviation. Promote the use of high-tensile steel bars and materials-saving techniques for the key rolling shapes used in the development of high speed railway, high magnetic induction grain-oriented silicon steel and high intensity machine straightening. Develop the circulated economy and energy-saving technology such as HTHP dry cooling, waste heat utilization of agglomeration and stack gas desulphurization. Give major support for the techniques used in developing the poor iron mines.

(V) Optimize the distribution of steel industry, achieve unified planning and development.

Under the premise of no increase of new productive capacity, accelerate the distribution of steel industry. First, carry out the construction of iron and steel base along the coastal areas, complete relocation of Capital Steel as scheduled to construct the Caofeidian Quality steel Base. Taking advantage of Guangzhou Steel's relocation for the merger & reorganization between Bao Steel and Guangdong steel enterprises; promote the merger and reorganization of Wuhan Steel and Guangxi steel enterprises. Construct the Zhanjiang and Fangchenggang coastal quality steel base appropriately via elimination or decrease of existing productive capacity. Pursuant to the sustainable economic mode adopted by Capital Steel for decrease of productive capacity in Caofeidian as well as decrease of productive capacity and relocation of Jinan Steel, Lai Steel and Qingdao Steel, carry out the reorganization and elimination of backward productive capacity for the steel enterprises in Shandong Province, to boost the construction of Rizhao Quality Steel Base. Per the relocation of Hangzhou Steel as well as Bao Steel's trans-regional reorganization and elimination of backward productive capacity, evaluate the Ningbo Steel's expansion project. Second, promote the relocation of steel plants in the urban areas to guide the orderly transfer and centralized development of the steel industry, s to reduce the urban environmental pollution. Do well the organization and relocation of steel plants in Beijing, Guangzhou, Hangzhou and Hefei as well as the steel plants relocation in Fushun, Qingdao, Chongqing and Shijiazhuang. Third, pay close attention and implement *Special Planning for Productivity Distribution and Industrial Adjustment in the Reconstruction after Wenchuan Earthquake*, to ascertain the construction of steel projects.

(VI) Adjust the structure of rolling shapes, improve the quality of products.

Particularly develop the steel used for high speed railways, high intensity steel used for the cars, high-end steel use for the power as well as the mound steel and key rolling shapes such as specially forged large steel. Support eligible enterprises and research units to carry out the techniques used for developing the steel plate with extra thickness for 1000 MW thermal power and nuclear power as well as the high-pressure boiler tube, high magnetic induction and low core loss silicon steel with over 250,000 KVA. Improve certification standards to strengthen the policy guidance, to ensure that the quality of steel products could reach the advanced level in the world. Revise the relevant design specifications to eliminate the hot-rolled steel bars of which the intensity is no more than 335MPa. The hot-rolled steel bars with the handle strength of no less than 400MPa, to accelerate the upgrading of building steel.

(VII) Stabilize imported iron ore, adjust the market order.

The industrial association to carry out the coordination and strengthen the self-discipline, so as to regulate the market order of imported iron ore. Encourage the agent system. As the current market is weak, coordinate the relations between the domestic users and iron ore to establish the pricing system for the imported mine with mutual benefits as well as the long-term and stable partnership. Regulate the sales system for steel to establish the risk share system for both production and marketing. Bring into full play the regulatory function in the course of the circulation for stabilizing the steel market.

(VIII) Develop two resources at both home and abroad to ensure the industry safety.

Carry out exploration for the domestic iron mine. The domestic iron mine resources to be properly developed and distributed to increase the resource reserves. Encourage large-sized steel enterprises to carry out exploratory development for the iron mine, and moderately develop the low-grade ore and tailings. Enhance the research, development, and integrated utilization of mineral intergrowth and accompanied mineral resources. Spare no efforts on developing the large-sized iron mines in Sijiaying, Hebei and Yuanjiacun, Shanxi to improve the domestic content ratio of iron ore. Support the deep mining in the existing mining areas such as Zhongguan of steel, Shirengou of Tang Steel, Tadong of Tong Steel and Enshi of Wuhan Steel, to improve the integrated utilization of resources; the integrated utilization of vanadium and titanium in Panxi, Sichuan and Chengde, Hebei. Integrate the iron mine resources in Huoqiu, Anhui and Canshan, Shandong.

Encourage eligible large sized enterprises to make exclusive investment or set up joint ventures abroad; also, make good coordination for overseas mineral projects which have been carried out. Encourage steel enterprises along the coastal areas to take full advantage of the regional and transportation advantages, so that the iron ore and coal from abroad could be used as far as possible.

IV. Policy measures

(I) Adjust import and export tax rates for some products.

Continuously control the export of low value added products with "high-polluting, high-energy-consuming and resource dependent" and conscientiously carry out the measures for improving the tax reimbursement rate for export. Improve the tax reimbursement rate for export properly for the steel products with high technical contents and high added value. Accelerate the tax reimbursement for export to timely guarantee the sufficient quotas of tax rebates.

(II) Implement fair trade policy.

Research the equity tax policy for both home-made steel products and imported steel products to formulate the physical measures, to create the fair market environment for the steel enterprises in China.

(III) Strengthen input in technological progress and technical reconstruction.

Special funds are available for the investment in capital construction within the central budget, and loans for supporting the technical reconstruction of steel enterprises (excluding the renovation of power-saving technology), technological R&D and technology introduction, to push forward the technological progress of steel industry. Adjust the steel structure to improve the quality of steel products. Further increase the financial incentive for power-saving technology to encourage and support the steel enterprises to positively carry forward the renovation of power-saving technology.

(IV) Improve withdraw mechanism for backward productive capacity.

Increase financial incentives for elimination of backward productive capacity, encourage steel enterprises to adequately arrange personnel placement, change the line of production, and pay the liabilities, to boost the harmony and stabilization of society. Strictly implement the responsibility system for energy-saving and elimination of backward productive capacity, in accordance with the Notice of the *State Council for Executive Plan and Measures concerning the Supervision and Examining on Energy-Saving and Pollution Reduction* (Guo Fa [2007] No. 36), suspend the examination and approval for the regions which fail to complete the energy-saving, pollution reduction and elimination of backward productive capacity as required. The Ministry of Industry and Information Technology and component departments to cooperate to strengthen the supervision on the elimination of backward productive capacity as well as disclose the name list of backward enterprises regularly to the financial department, environmental protection department, administrative bureau of industry and commerce and quality inspection department. The local people's government at different levels to strictly supervise on the backward equipment to be eliminated within the time limit as specified, to avoid capacity expansion and transfer to other places without the permission, or the credit support shall be unavailable and the land use procedures will not be handled by the administrative department for land resources.

(V) Improve policy for reorganization of enterprises.

Formulate policies and measures for encouraging the merger and reorganization of steel enterprises to adequately arrange the placement of personnel who are more than needed as well as the enterprise assets transfer, liability check and deposal and distribution of finance and taxation. Make examination and approval firstly for the renovated and expanded projects after restructuring of the trans-provincial (district and municipal) large sized enterprises. Implement well the taxation policy for encouraging the

reorganization of steel enterprises. Research and formulate in an appropriate time regulations for merger and reorganization of steel enterprises.

(VI) Revise policy for the steel industry.

Adjust and update the *Catalogue Guiding Industrial Structure Adjustment*, amend and improve the *Development Policies for Steel Industry*. First, lower the comprehensive energy consumption for per ton steel, new water consumption for per ton steel as well as eliminate the backward standards for iron and steel production; second, modify the examining scope and proportion of indices for the concentration of domestic steel industry; third, increase energy-saving and pollution reduction, including the environmental records such as emission of chemical oxygen demand (COD), sulphur dioxide and dust, and recycling rate of combustible gas and integrated utilization rate of solid waste; fourth, clearly define the specific requirements for resource allocation. According to law, firstly allocate the iron mine with the reserves of over 50 million to large- and medium-sized enterprises in China. Fifth, enhance the admission standards for mineral resources development.

(VII) Improve standards for the steel used in architectural engineering.

Improve the engineering construction standards for the construction in a timely way. In considering the improvement of earthquake-resistance standards, work out the steel structure use standards for industrial premises, public buildings and commercial facilities, and modify the steel use standards and design specifications for the buildings, major projects and building foundation in the area where the earthquake often occurs.

(VIII) Achieve harmonious development of both the steel industry and related industries.

Improve the expansionary policies for related industries such as equipment, automobile, shipbuilding and home appliances to drive the consumption and upgrading of steel products. Strengthen R&D of new technology and new products for the steel industry to boost the upgrading of related industries and products. Encourage and support steel enterprises to cooperate with related enterprises which use steel to realize the harmonious development.

(IX) Implement financing policy.

Strengthen financial support for backbone steel enterprises. Give support to the projects which are subject to the environmental protection, agrarian law and portfolio management requirements, and enterprises which implement the merger, reorganization; go global, and make technological progress in terms of issuing stock, corporate bond, middle-term bill, short term financing and bank loan as well as absorbing the privately collected equities. Avoid the capital chain rupture of the large-sized backbone enterprises. If necessary, make available loan and discounts, and continuously implement financing restrictions for projects without approval and the enterprises with backward productive capacity.

(X) Carry out the strategy of “go global” positively.

Further simplify the procedures for examination and approval of projects. Improve policies and measures for credit, foreign exchange, finance and taxation, and entry and exist of personnel. Improve admission standards for enterprise's overseas resource development. Encourage qualified backbone enterprises to carry out the resource exploration, development, technical cooperation and merger and acquisition overseas. Enhance operating management for overseas assets to avoid the asset risk from abroad. Enlarge the size of export credit for metallurgical equipment to drive the export of equipment and materials. Improve the export credit insurance policy to support steel enterprises to set up overseas marketing networks and stabilize the export share of high end products. Take full advantage of the special funds from overseas mineral resources investment, foreign economic & technical cooperation and overseas

mineral resources exploration to support the enterprises to implement the strategy of “go global” and to enhance the capability of safeguarding resources.

(XI) Establish the industrial information disclosure system.

Establish a joint information disclosure system to disclose the information concerning the industrial policy, project approval, production and inventory selling, utilization of productive capacity, elimination of backward productive capacity, enterprise reorganization, dirty discharges and bank loans. Strengthen information sharing substantially and make available information guidance for enterprise investment decision, bank loan, and land pre-examining.

(XII) Bring into play the role of industrial association.

Fully utilize industrial associations as the bridge for the communication among the enterprises and buyers, encourage organization of negotiation with steel buyers could be to set up the win-win pricing system. The steel association could cooperate with related chamber of commerce to make the coordination among the enterprises to positively answer the anti-allowance and anti-dumping litigation arising from foreign trade as well as maintain the market order and fair competition environment. The industrial association is to timely reflect the industry-related issues and the enterprises' appeal. Make available information services for the enterprises, which are to be guided to implement the state's industrial policy and strengthen the self-discipline inside the industry to enhance the overall quality of industry.

V. Planning implementation

Each region shall timely work out the specific scheme according to the targets, tasks, and policies required by the *Plan* as well as local conditions, so as to guarantee the actual effect could be obtained. Each province (region and municipality) shall timely submit the specific scheme as well as new situations and issues arising from implementation thereof to the National Development and Reform Commission.

The relevant departments of the State Council shall enhance the communication and negotiation as well as carry out the close coordination according to the *Plan*, so as to timely work out the specific implementation measures and clearly define the scope and time limit of measures, strengthen guidance and supervision, and conscientiously carry out the evaluation at the middle and later stage of the *Plan*, and propose evaluation results in a timely manner.

Attached: Table for special items of technological progress and technical reconstruction inside the steel industry

Table for special items of technological progress and technical reconstruction inside the steel industry

Category	Special items	Implemented contents
Technological R&D	Leading edge technology and production technology of critical products	Support R&D and fruitful results conversion of such key technologies as non- blast furnace iron smelting, continuous casting of ligature, high efficiency and low cost clean steel production, continuous casting of large slab and integrated utilization of slag. Give major support to the production technology concerning the special heavy plate used for 1000 MW thermal power and nuclear power as well as the high magnetic induction and low core loss silicon steel used for high-pressure boiler tube and transformer above 250,000 KVA.
	Independently assembled equipment and first set of equipment	The design production and system linking technology used for the steel enterprise at ten-million-ton level; key equipment used for hot-rolled and cold-rolled wide flat steel; project for localization of major equipment; first set of equipment
	The popularization of matured adaptive technology	Adaptive technologies such as high-tensile steel bar, steel plate for automobile and steel plate for shipbuilding
Special items from Technology introduction	Production technology for high end products	Production technology for high magnetic strength silicon steel; steel used for resisting high temperature, high pressure and erosion in the power station; high strength steel plate for the automobile
	Technology for clean manufacturing and circulated economy	Coke oven and coal damping, large-sized cogeneration and sea water conversion, etc.
Special items from technical reconstruction	Key rolling shapes	Particularly develop steel used for high speed railway, high-grade non-oriented silicon steel, high magnetic induction grain-oriented silicon steel, high strength machine straightening, anti-corrosion & large deformation steel pipeline, high strength steel use for cars, high-end steel used for the power station, high strength constructional steel, high-end precise stainless sheet steel, high-end mound steel, special large forged steel, top grade seamless steel pipe with special quality requirements
	High-tensile steel bar and steel material-saving	Modify related design to accelerate the elimination of high strength 335MPa hot-rolled reinforcing bar with steel ribs. Use reinforcing bars with the handle strength above 400MPa for buildings, building foundation projects and major projects in the regions where the earthquakes often occur. Adopt ultra-fine grain or micro-alloying to renovate the production lines of the large and medium-sized enterprises with large output of building steel, so as to boost the upgrading of building steel.
	Circulated technology and energy-saving & pollution reduction	The existing large-sized backbone enterprises and newly built steel enterprises under approval of the state are provided with HTHP dry cooling, waste heat utilization of

		agglomeration, stack gas desulfurization of agglomeration, blast furnace procedures system, power generation from residual pressure of blast furnace bottom and dry dust system, dry dust system and recycling technology from converter gas, integrated casting and rolling and integrated energy management technology. Encourage large steel plants along the coastal areas to adopt wind power generation.
	Low-grade mineral resources smelting	Support the development of smelting technology and deep mining technology for the low-grade mineral resources such as brown iron ore, high phosphorus iron ore and siderite. Encourage integrated utilization of resources such as vanadium, titanium and iron boron.
	Coking and supplementary materials	Support the recycling of coking products as well as the development and application of energy-saving and pollution reduction technology used for production of ferroalloy, carbon and refractory materials.
	Informatization and automation	Support the independent development of automatic control technology and informatization management technology for steel production.